Plugfest@Prague

Goals and Objectives

Goals

- Semantic Interoperability using external vocabularies – iot.schema.org
- Protocol Binding integration
- WoT Proxies
- Thing Directories
- Add security for things
- Accessability – stretch goal – semantic annotation

Semantic Integration

- iotschema Capability model
  - Capability (switch, speed, brightness)
  - Interaction (event, action, property)
  - Data Item (brightness value, transition time, speed value)
- Granular Capabilities
  - Light => switch,brightness, colorcontrol
  - Air Conditioner => switch, fan speed, operational mode

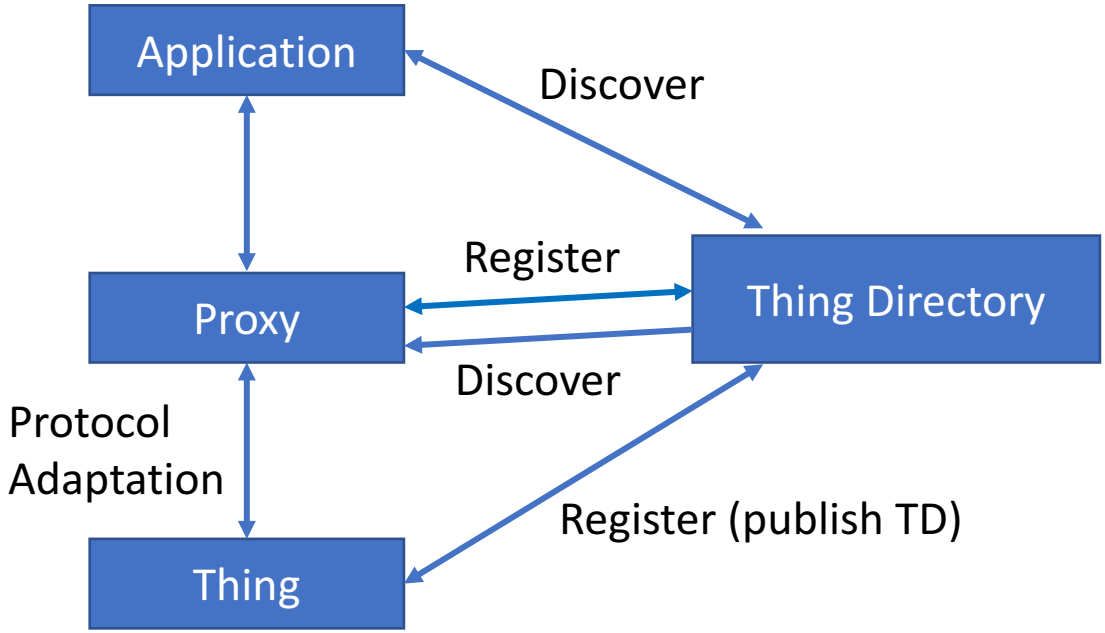
TD Annotation: Capability, Interaction, and Data Item

```
"base": "coap://example.net:5683/",
"@type": [ "Thing", "iot:TemperatureCapability" ],
"name": "Temperature Sensor",
"interaction": [
  {
    "name": "Temperature",
    "@type": ["Property", "iot:TemperatureProperty"],
    "outputData":  {
      "type": "object",
      "field": [
        {
          "name": "temperature",
          "@type": ["iot:TemperatureData"],
          "type": "number",
          "minimum": -50,
          "maximum": 100,
          "unit": "Celsius"
        }
      ]
    }
```

Protocol Bindings

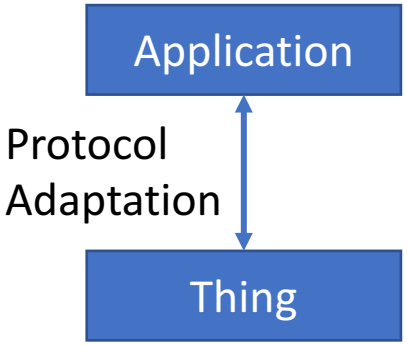
- For device specific protocol adaptations
  - OCF, LWM2M
- For exposing proxy devices
  - consume/expose style, architecture
  - how to construct exposed things with different protocol vs. consumed things
  - HTTP, websockets, MQTT
  - Develop transfer layer for websockets for general proxy connection
  - Multiple protocol bindings exposed by a device
- Priorities
  - More automation – need an implementation plan
  - TD vocabulary changes and adds
  - Aligned Examples

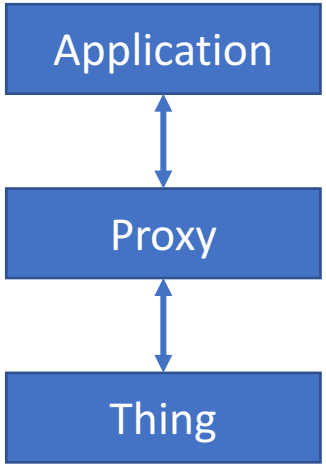
Thing Directories

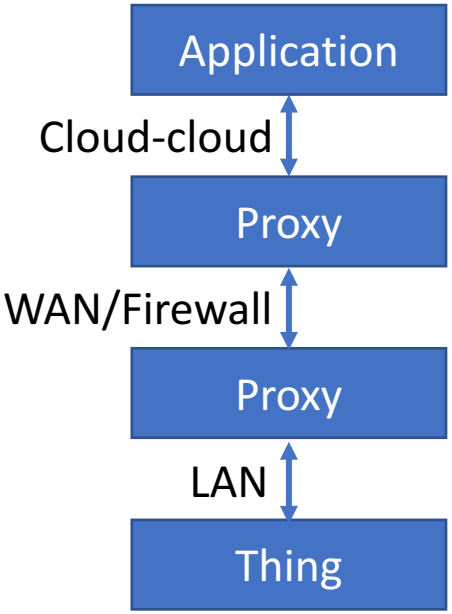


WoT Proxies

- Firewall Traversal, Reachability
- Protocol Adaptation







Implementation Guidance

- Functionality categories
- Thing Directory
- Semantic Annotation
- Protocol Binding
- Proxy
- Security
- Accessibility

Functionality

- What is the functionality you are planning to bring WRT the following?
  - Client
  - Application
  - Server
  - Thing Directory
  - Proxy

Thing Directory

- How will you do registration life cycle management?
- What TDs will you register as a server?
- What client discovery methods will you use?
  - Discover Instances based on TD content (client)
  - Semantic filter, SPARQL queries
- Additional semantic annotation about context
  - How does it get added to the TD?
  - What will the client use?

Semantic Annotation

- What thing types and Capabilities will be exposed by your servers?
- What interactions and data types will be exposed for each capability?
- How does the client know what things, capabilities, and interactions to look for?
- What application does your client host?

Protocol Binding

- Which Target Protocols do your servers expose?
- How are Observable Properties handled by your servers?
- How are Events handled in your server protocol?
- Which target protocols does your client support?

Proxy

- What protocols does your proxy consume?
- What protocols does your proxy expose?
- What security protocols are needed to interact with your proxy?
  - To expose things through the proxy?
  - To consume things through the proxy?
- How does your proxy interact with Thing Directories for discovery of consumed things and registration of exposed things?
- How does your proxy remap URIs?

Security

- What transport security methods are supported, e.g. DTLS?
- What access control features are implemented, e.g. HTTP basic auth, kerberos tokens, ACLs ?
- How is security material obtained and configured?
- What additional services are needed/provided such as Auth Server (AS)?

Accessibility

- What Accessibility scenario is being modeled?
- What alternate modes of interaction are provided by the client and application?
- What are additional requirements on the Thing Directory, Server and Proxy to support your Accessibility Scenario?